



Clinical case

Immediate loaded implant-supported prosthesis after mandibular reconstruction with free iliac crest bone graft



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ABSTRACT

The head and neck are commonly affected in gunshot injuries and this can cause functional and esthetic defects in the maxillofacial region. Mandibular discontinuity is an important esthetic and functional problem and its reconstruction represents a huge challenge. The opening, closing, lateral and protrusive movements of the mouth are diminished and malocclusion can occur. The purpose is to report a clinical case of a 44 years man who had an immediate loaded implant-supported prosthesis after six months of mandibular reconstruction with free iliac bone grafting of a greatmandibular defect caused by gun shot. Autogenous bone grafting is the most predictable treatment from the available reconstruction options for mandibular bone defects. Reconstructed patients can achieve good results with dental implants and implant-supported prostheses with immediate loading. This treatment can promote better masticatory function, improving the nutrition capacity, facial symmetry, muscular equilibrium, better diction and quality of life.

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Prótese implanto-suportada sob carga imediata após a reconstrução mandibular com enxerto livre de crista ilíaca

RESUMO

A cabeça e o pescoço são comumente afetados em lesões por arma de fogo, podendo causar defeitos estéticos e funcionais. Descontinuidade mandibular é um problema estético e funcional importante e a sua reconstrução representa um desafio. A abertura, encerramento, movimentos de lateralidade e protrusão da boca estão diminuídos e uma má oclusão pode ocorrer. O objetivo deste trabalho é relatar o caso de um homem de 44 anos submetido

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a reconstrução de um defeito mandibular causado por arma de fogo, com enxerto ósseo livre do íliaco e instalação de prótese implanto-suportada em carga imediata. Enxerto ósseo autógeno é o tratamento mais previsível entre as opções disponíveis para a reconstrução de defeitos mandibulares. Este tipo de reconstrução em pacientes pode obter bons resultados com implantes dentários e próteses com carga imediata. Este tratamento pode promover uma melhor função mastigatória, melhorando a capacidade de nutrição, simetria facial, equilíbrio muscular, melhor dicção e qualidade de vida.

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Introduction

Functional and esthetic defects in the maxillofacial region can be caused by different reasons as trauma, pathologies, congenital or iatrogenic. The head and neck are commonly affected in gunshot injuries. More than 50% of attempted suicides, 14% of assaults, and 12% of accidental injuries occur in this area.¹ Mandibular discontinuity is a very important esthetic and functional problem and the reconstruction of these patients represents a very huge challenge. The opening, closing, lateral and protrusive movements of the mouth are diminished and impaired, malocclusion and problems with proprioception can occur.^{2,3}

Autogenous bone is believed to be the “gold standard” for graft procedures. It has a very high osteogenic potential, however, it has a limited availability and the surgical procedures might cause additional morbidity.⁴⁻⁶ Bone grafts taken from the iliac crest have demonstrated to be a very reliable means for the reconstruction of maxillofacial defects after ablation of tumors.⁷ Non-vascularized bone grafts from the anterior iliac crest offer numerous advantages, such as reliable shape, adequate volume, low donor morbidity, and a distant location from the mandible to facilitate a multiteam approach.⁸ This kind of bone reconstructions allow not only the adequate facial contour and bone continuity, but also creates an adequate support for the implant placement and implant-supported prosthetic rehabilitations.⁷⁻⁹

The grafting procedure using bone from the anterior iliac crest is less invasive than a free-flap technique, has a good success rate and provides good quality bone for successful osseointegration of dental implants.^{10,11} The purpose of this article is to report a clinical case of an immediate loaded implant-supported prosthesis after six months of mandibular reconstruction with free iliac bone grafting of a great mandibular defect caused by fire gun shot.

Case report

A 44 years old man attended the Oral and maxillofacial surgery department for treatment of a mandibular bone defect after injury by firearms. He reported an attempt of suicide about 1 year before. On the clinical evaluation, the facial contour was preserved by a reconstruction plate and the panoramic radiograph showed a bone defect without continuity of the left mandibular body. The stabilization of bone segments was

maintained by a reconstruction plate of load bearing type (Figs. 1 and 2). The proposed treatment plan was the reconstruction of the mandibular defect using free iliac crest bone and after that, an implant-supported rehabilitation.

Under general anesthesia, surgery for mandibular reconstruction was performed by submandibular access, location of defect and preparation of the recipient area with small perforations. Then the free block of iliac crest bone was adapted and fixed on the reconstruction plate of 2.4 mm (Neo-ortho, Curitiba, PR, Brazil) in the defect area (Figs. 3 and 4). Antibiotics, anti-inflammatories and analgesics were administered during the hospitalization period and mouthwash with chlorhexidine was used as an adjunct to oral hygiene. The



Fig. 1 – Intraoral view of the left mandibular body defect.



Fig. 2 – Panoramic radiograph view of the left mandibular body defect.

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